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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CALEY, MICHAEL H

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,152

Applicant(s)

HIRONISHI, KAZUO

Examiner

Michael H Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 3-13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao '607 (U.S. Patent No. 6,396,607) in view of Cao '515 (U.S. Patent No. 6,104,515).

Cao '607 discloses:

an optical demultiplexer with an input port and a plurality of output ports
(Figure 1 element 20);

an optical multiplexer having an output port and a plurality of input ports
(Figure 1 element 30);

a plurality of optical paths for connecting input ports and output ports
(Figure 1);

at least one delay adjuster on at least one of the optical paths (Figure 1 elements 24-26);

a controller for controlling the delay adjusters (Figure 1 element 40).

Cao '607 fails to disclose a detector for detecting the modulation-phase of at least one of the plurality of optical signals. Cao '515 teaches a modulation-phase detector used in a phase modulating device used for compensating for delay between channels in a WDM application (Figure 1 elements 32, 34, and 26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a modulation-phase detector in a phase controlling device. Such a detector would allow for direct means of determining the delay between channels according to the difference in phase. Direct measuring of the modulation-phase would permit the clock-recovery to be performed in the same loop as the phase controlling device instead of performing the same function with separate elements.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cao '607 in view of Cao '515 and in further view of Kaede et al. (U.S. Patent No. 5,467,213).

Cao '607 fails to disclose an optical modulator for performing intensity modulation according to an RZ signal. Kaede, however, teaches, the use of an optical modulator to perform intensity modulation according to an RZ signal in a phase modulating optical repeater circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have appended an optical modulator to the output of Cao '607's regenerator in order to intensity modulate the phase modulated signal. Such an improvement would allow Cao '607's device to intensity modulate and phase modulate an optical signal, allowing it to function as a repeater in an optical transmission line.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cao '607 in view of Cao '515 and in further view of Newburg et al. (U.S. Patent No. 5,109,449).

Cao '607 discloses all of the proposed limitations except for the delay adjuster implemented by means of waveguides of differing optical pathlengths. Newburg teaches a

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variable delay configuration using waveguides of differing optical pathlengths as is well known and practiced in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used such a variable delay line in order to implement the delay adjusters. The use of such a device would have been advantageous in an application where it is desired to have control of the optical length over only discrete values. The implementation of the delay adjuster using separate waveguides could be useful to simplify the control circuitry in the phase controller. Such adjustment of the control circuitry within the phase controller of Cao '607's device would have been within reach of one of ordinary skill in the art at the time of invention.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cao '607 in view of Cao '515 and in further view of Takara et al. (U.S. Patent No. 5,646,774).

Cao '607 discloses all of the proposed limitations except for the delay adjuster as a fiber wound about a piezoelectric device controlled by a variable voltage source. Takara teaches a delay adjuster in a laser stabilizing device in which the optical delay through a fiber is adjusted by controlling a voltage supplied to a piezoelectric device around which the fiber is wrapped (Figure 5A), as is commonly known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used such a piezoelectric device to adjust the optical length of the fiber. The use of such a device would have been advantageous in an application where it is desired to have control of the optical length over a continuous range of values. Adjustment of the control

circuitry within the phase controller of Cao '607's device would have been within reach of one of ordinary skill in the art at the time of invention.

Allowable Subject Matter

Claims 3-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4,744,094 to Sakaguchi et al. as a clock phase comparator in a repeater system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H Caley whose telephone number is (703) 305-7913.

The examiner can normally be reached on M-F 8:30 a.m. - 5:00 a.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

mhc

October 18, 2002


ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800